ADVANCED COOLING TECHNOLOGIES

WAHX

WRAP-AROUND HEAT PIPE HEAT EXCHANGERS

Cut HVAC Energy. Recover Sensible Heat. Control Humidity—Passively.

ACT's Wrap-Around Heat Exchanger (WAHX) is a simple, proven way to reduce HVAC energy while improving comfort and dehumidification in high-humidity, high-ventilation systems.

Wrap-around systems passively pre-cool incoming airstreams, delivering significant cooling savings *before* the cooling coil and measurable reheat energy savings *after* the coil—all without added pumps, controls, or operational complexity.

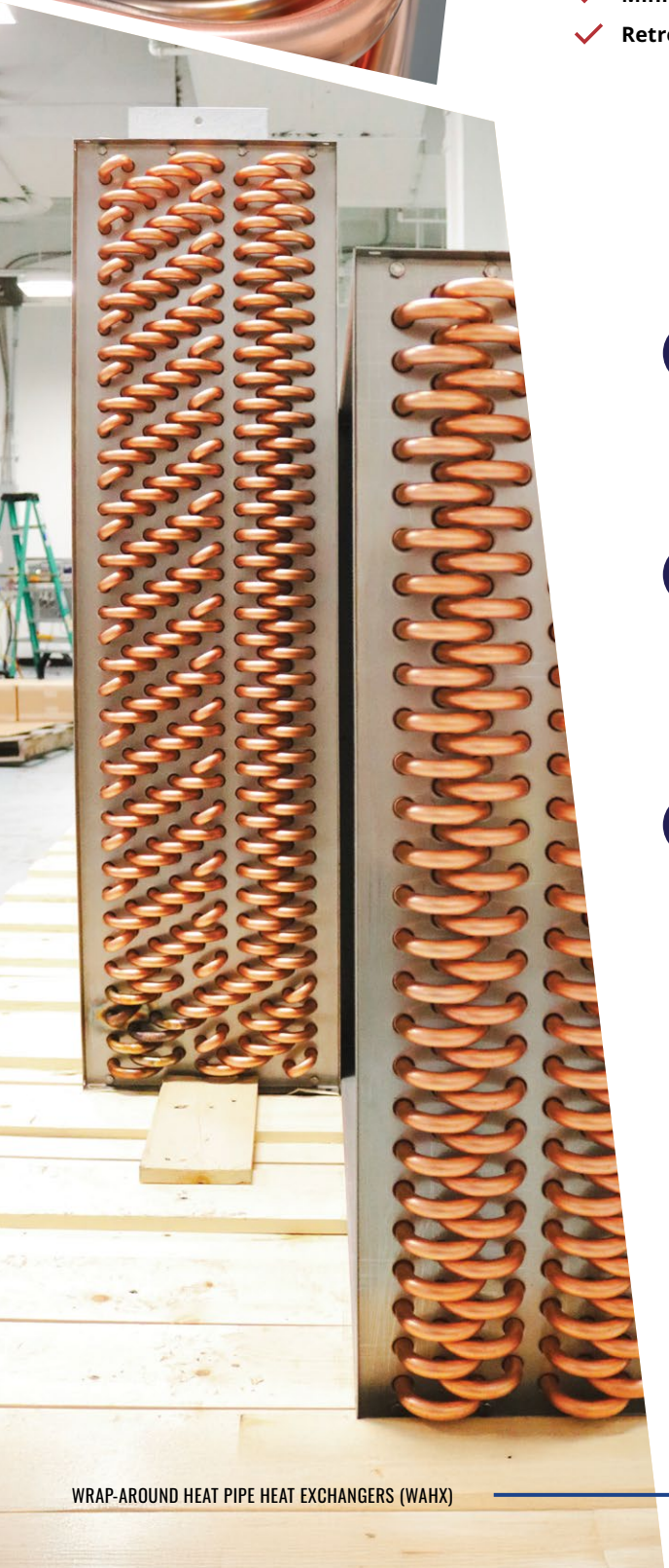
NO ADDED ENERGY. NO MOVING PARTS.
TYPICAL PAYBACK UNDER 2 YEARS.

IDEAL APPLICATIONS

- **Dedicated Outdoor Air Systems** (70%+ outside air)
- **Healthcare Facilities & Laboratories**
- **Universities, Hotels & Multi-Family Housing**
- **Natatoriums & Fitness Centers**
- **Any AHU requiring neutral air discharge and moisture control**

KEY BENEFITS

- **Boosts dehumidification** by pre-cooling incoming air before the active cooling coil
- **Cuts cooling tonnage and compressor runtime** by shifting load to passive heat transfer
- **Delivers passive reheat** by recovering sensible heat already in the airstream
- **Eliminates electric/hot water/gas reheat** for neutral air discharge
- **Improves efficiency** in high outside-air and variable-load applications
- **Meets on-board energy recovery requirements** for DOAS/neutral air systems
- **Simplifies HVAC design**—no hot gas piping, heaters, or complex controls
- **Minimizes maintenance**—no motors, belts, bearings, or media
- **Retrofits easily** into existing AHUs with minimal ductwork



WRAP-AROUND HEAT PIPE HEAT EXCHANGERS (WAHX)

HOW IT WORKS

ACT's WAHX uses passive sealed heat pipe technology to recover latent and sensible heat around the cooling coil—improving the air handler's cooling tonnage performance and eliminating or reducing the reliance on gas, hot water, or electric reheat.

1 Pre-Cool | UPSTREAM HEAT PIPE COIL

Warm, humid incoming air passes through the pre-cool coil. Sensible heat is absorbed into sealed heat pipes, lowering the air temperature before it reaches the active cooling coil—without consuming energy.

RESULT: Increased latent removal capability from the existing cooling coil.

2 Cool & Dehumidify | ACTIVE COOLING COIL

WAHX pre-cooled air flows through the chilled water or DX cooling coil with a reduced latent load. Cooler, drier entering air enables more efficient cooling with less chilled water consumption.

RESULT: Deeper passive dehumidification without overcooling. Reduced chilled water consumption delivers tonnage savings or added capacity.

3 Passive Reheat | DOWNSTREAM HEAT PIPE COIL

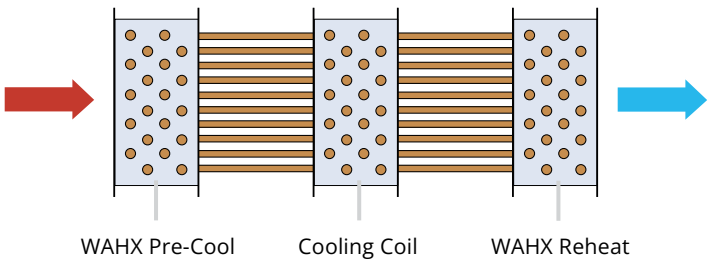
Recovered heat is released downstream, reheating the air to a neutral discharge temperature—without electric, hot water, or gas reheat.

RESULT: Comfortable supply air delivered passively using recovered energy.

Why This Matters

WAHX changes the sensible heat ratio of the cooling coil—allowing better humidity control, lower energy use, and simpler HVAC systems.

BETTER COMFORT. LOWER ENERGY. SIMPLER SYSTEMS.



TECHNICAL SUMMARY

WAHX Performance Summary

- **Increased dehumidification capacity**
- **Cooling tonnage savings from pre-cooling**
- **Dramatically cuts reheat energy and infrastructure needs**
- **Reduced system complexity and maintenance**

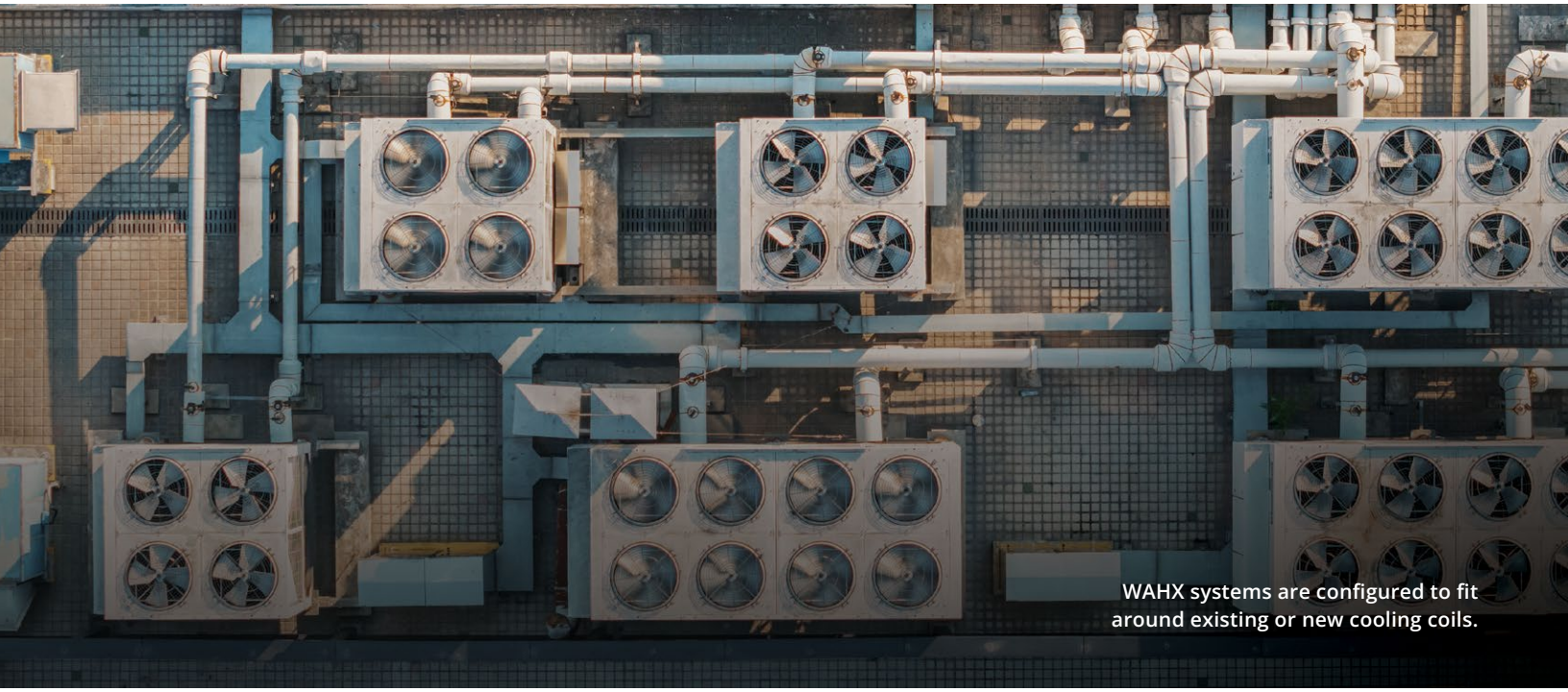
Typical Static Pressure Impact

Low—generally **0.15 to 0.45 in. w.g.** for 2–6 row WAHX designs

When to Apply WAHX

- Any new or retrofit AHU requiring reheat—even 2–3°F
- DOAS units delivering neutral supply air
- Chilled water systems without hot gas reheat
- Split DX systems where hot gas reheat piping is impractical
- Systems needing onboard energy recovery compliance*

*WAHX meets onboard energy recovery requirements while reducing control complexity in both chilled water and DX systems.



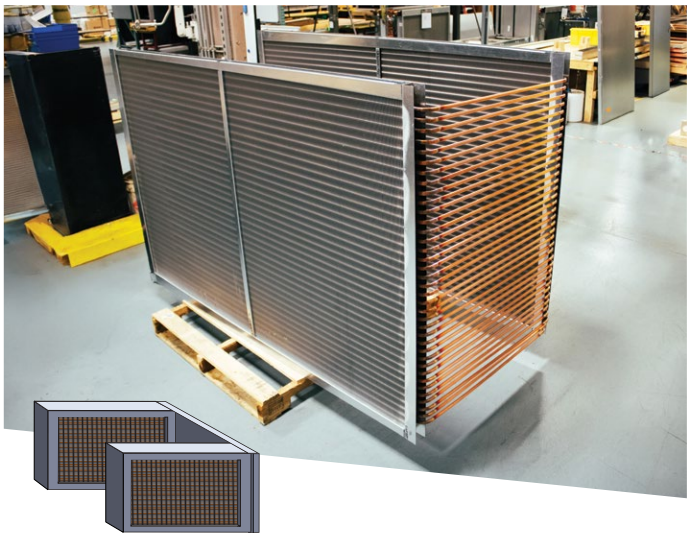
WAHX systems are configured to fit around existing or new cooling coils.

WAHX vs Traditional Reheat

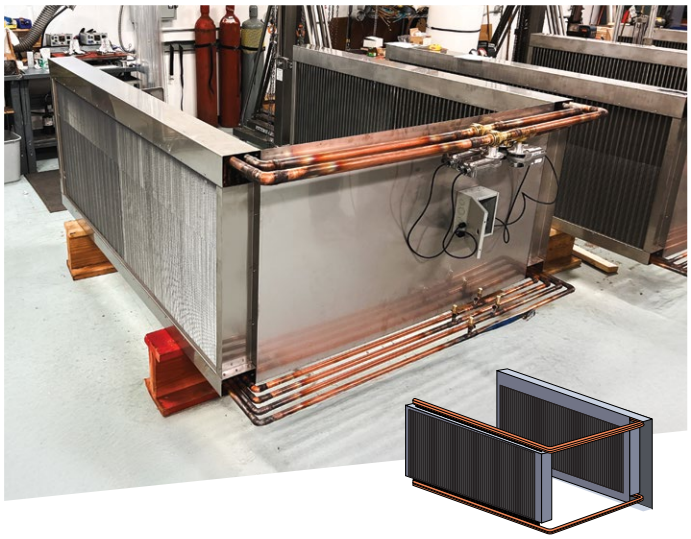
	WAHX	ELECTRIC/HOT WATER REHEAT
Energy Use	Recovered	Added
Moving Parts	None	Valves, heaters, controls
Maintenance	Minimal	Ongoing
Carbon Impact	Reduced	Increased
Reliability	Passive	Mechanically dependent
ROI	<2 years	3-5+ years

CONFIGURATIONS & SPECIFICATIONS

Pipe-to-Pipe WAHX



Split-Loop Thermosyphon WAHX



WAHX TYPES & CONFIGURATIONS	PIPE-TO-PIPE CONNECTION (EVERY ROW, EVERY PIPE)	SPLIT-LOOP THERMOSYPHON (TWO PIPES PER ROW)
Duct Orientation & Configuration	Horizontal series airflow installation around the cooling coil	Horizontal series airflow installation with separate pre-cool and reheat sections
Key Features	Applicable to any coil dimension; fully stackable; optional passive or active reheat control; optional ElectroFin® or Heresite® coatings	Suitable for any length coil; height-stackable in 37.5" fin height segments; optional reheat control; optional corrosion coatings and casing in galvanized or stainless steel
PERFORMANCE		
Function	Passive pre-cooling and reheat for neutral air discharge	
Technology	Heat pipe-connected pre-cool and reheat coils	
Pressure Drop	Typically 0.15–0.45 in. w.g. for 2–6 row WAHX designs	
Maintenance	Minimal; treat coils like standard AHU coils (periodic cleaning)	
Certifications	UL 207; manufactured in ISO 9001/AS9100 certified facility	
Payback	Typically 2–3 years	
Carbon Reduction	Significant CO_2 savings through pre-cool/reheat energy recovery	
System Refrigerant Type	R-513A (others can be evaluated upon request)	

Let's build air handlers with ACT energy recovery systems that passively save tons of cooling and reheat energy.

TALK TO AN EXPERT

Scan the QR code or visit
1-act.com/contact

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ISO 9001 & AS9100 Certified
ITAR & EAR Compliant

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